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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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EXAMINER

WOZNIAK, JAMES S

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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2655

DATE MAILED: 09/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-------------------------------|------------------------------|--|
| Office Action Summary | Application No. 09/941,112 | Applicant(s) WYMAN, BLAIR | |
| | Examiner James S. Wozniak | Art Unit 2655 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 8/28/2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION*Drawings*

1. **Figs. 2 and 5** are objected to because the term "voice recognition" is misused for what nowadays is called --**speech recognition**-- in the speech signal processing art. While "voice recognition" and "speech recognition" were both once used interchangeably to refer to spoken word recognition, nowadays these two terms are distinguished. The term "**voice** recognition" now denotes identification of *who* is doing the speaking (class 704/246), while "**speech** recognition" (or "**word** recognition") denotes identification of *what* is being said (class 704/251). So, appropriate correction to the proper terms of art is required.

Specification

2. The disclosure is objected to because the term "voice recognition" is misused for what nowadays is called --**speech recognition**-- in the speech signal processing art. While "voice recognition" and "speech recognition" were both once used interchangeably to refer to spoken word recognition, nowadays these two terms are distinguished. The term "**voice** recognition" now denotes identification of *who* is doing the speaking (class 704/246), while "**speech** recognition" (or "**word** recognition") denotes identification of *what* is being said (class 704/251). So, appropriate correction to the proper terms of art is required (*for example: Page 4, Line 15, Page 6, Line 1*).

Claim Objections

3. **Claims 1, 5-7, 11, and 18** are objected to because the term "voice recognition" is misused for what nowadays is called --**speech recognition**-- in the speech signal processing art. While "voice recognition" and "speech recognition" were both once used interchangeably to refer to spoken word recognition, nowadays these two terms are distinguished. The term "**voice** recognition" now denotes identification of *who* is doing the speaking (class 704/246), while "**speech** recognition" (or "**word** recognition") denotes identification of *what* is being said (class 704/251). So, appropriate correction to the proper terms of art is required (*for example: Claim 1, Line 4, Claim 5, Line 3*).

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. **Claims 1-5, 10, and 15-20** are rejected under 35 U.S.C. 102(e) as being anticipated by Byers (*U.S. Patent: 6,219,645*).

With respect to **Claims 1 and 15**, Byers discloses:

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Receiving a microphone signal from each of a plurality of microphones (*Col. 5, Lines 2-12, and Fig. 1, Elements, 70, 75, 80, and 85*);

Identifying a spoken command utilizing voice recognition responsive to each said received microphone signal (*automatic speech recognition controller, Col. 5, Lines 2-12*);

Identifying a sound location vector responsive to each said identified spoken command (*determining speaker direction, Col. 5, Lines 2-29, and Col. 12, Lines 30-36*); and

Providing a response command based upon said sound location vector (*relaying a speech command to an appropriate device to produce a desired response, Col. 5, Lines 2-29, and speech commands, Col. 10, Lines 25-43*).

With respect to **Claim 2**, Byers recites:

Digitizing said microphone signal from each of a plurality of microphones; and adding a clock signal to each said digitized microphone signal (*analog to digital converter, Col. 6, Lines 20-50, and a plurality of ADCs coupled to a digital signal processor, Col. 6, Line 63- Col. 7, Line 13, and Fig 2, Element 230, that would inherently contain an internal clock for synchronized processing of multiple digital signals*).

With respect to **Claims 3 and 16**, Byers shows:

Applying an analog audio signal from each of a plurality of microphones to a respective analog-to-digital converter (ADC) coupled to each of said plurality of microphones (*Fig. 2, Elements 220 and 225*).

With respect to **Claims 4 and 17**, Byers discloses:

Applying a digitized audio signal from said respective analog-to-digital converter (ADC) to a clock adder for adding said clock signal (*plurality of ADCs coupled to a digital signal*

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processor, Col. 6, Line 63- Col. 7, Line 13, and Fig 2, Element 230, that would inherently contain an internal clock for synchronized processing of multiple digital signals).

With respect to **Claim 5**, Byers recites:

Identifying a predefined first command word of predetermined spoken commands
(recognizing an initialization word prior to a command, Col. 16, Lines 29-40).

With respect to **Claim 10**, Byers discloses:

Determining intent of said identified spoken command utilizing said sound location vector *(determining speaker direction, Col. 5, Lines 2-29, and Col. 12, Lines 30-36, and Col. 6, Lines 16-18).*

With respect to **Claim 18**, Byers teaches the DSP as applied to Claim 4, and the ASR controller as shown in Fig. 1 *(Element 50).*

Claim 19 contains subject matter similar to Claim 1, and thus, is rejected for the same reason.

Claim 20 contains subject matter similar to Claims 1 and 10, and thus, is rejected for the same reasons.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. **Claim 11** is rejected under 35 U.S.C. 103(a) as being unpatentable over Byers.

With respect to **Claim 11**, Byers teaches the speech control method capable of identifying a speaker's location for routing a command to an appropriate device, as applied to Claim 1. Byers does not specifically suggest method implementation as a computer program on a computer readable medium, however, it would have been obvious to one of ordinary skill in the art, at the time of invention, to store the speech control method taught by Byers as a program on a computer readable medium to increase method compatibility and usability by providing a means for method use with multiple computer systems.

8. **Claims 6-9 and 12-14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Byers in view of Gerson et al (*U.S. Patent: 4,905,288*).

With respect to **Claim 6**, Byers teaches the speech control system and method capable of identifying a speaker's location for routing a command to an appropriate device, as applied to Claim 1. Byers does not teach the use of speaker dependent recognition, to recognize commands only for a specific user, however speaker dependent recognition is well-known in the speech recognition art, as is evidenced by Gerson:

Identifying said received microphone signal for a predetermined person and identifying said spoken commands only from said identified predetermined person (*speaker dependent recognition, Col. 7, Lines 24-55*).

Byers and Gerson are analogous art because they are from a similar field of endeavor in speech-controlled systems. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to combine the use of speaker dependent recognition in a speech-

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controlled system as taught by Gerson with the speech control system capable of identifying a speaker's location for routing a command to an appropriate device as taught by Byers to allow only specific users to issue a speech command, thus preventing incorrect command recognition resulting from an unregistered user's speech or background audio device. Therefore, it would have been obvious to combine Gerson with Byers for the benefit of preventing unauthorized users from issuing a command through the use of speaker dependent recognition.

With respect to **Claim 7**, Byers teaches the speech control system capable of identifying a speaker's location for routing a command to an appropriate device, as applied to Claim 1. Byers further discloses a microphone identifier for specifying a microphone location (Col. 9, Lines 47-61). Byers does not teach the use of a command start time and length in the recognition process, however Gerson recites:

Storing a command start time T.sub.0, and command length T.sub.c (*speech input endpoints, Col. 9, Line 56- Col. 10, Line 4, and Col. 26, Lines 14-16*).

Byers and Gerson are analogous art because they are from a similar field of endeavor in speech-controlled systems. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to combine the use of endpoints in determining a command starting and ending point as taught by Gerson with the speech control system capable of identifying a speaker's location for routing a command to an appropriate device and microphone identifier for specifying a microphone location as taught by Byers to increase recognition accuracy for the single word commands and initialization words taught by Byers (*Col. 5, Line 60, and Col. 16, Lines 29-40*) by performing isolated word recognition using endpoints. Therefore, it would have

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been obvious to combine Gerson with Byers for the benefit of increasing recognition accuracy for single word commands and initialization words.

With respect to **Claims 8 and 13**, Byers discloses the DSP used for speech recognition as applied to Claim 2, a microphone identifier as applied to Claim 7, and the use of arrival times in determining user location (*Col. 12, Lines 30-36, and Col. 13, Lines 15-31*), while Gerson discloses the use of endpoints in a speech recognition process as applied to Claim 7.

With respect to **Claim 9**, Byers recites:

Performing digital signal analysis of each said identified spoken command for each said stored channel number (*signal analysis performed at each microphone in order to determine user location, Col. 15, Lines 13-48, and Fig. 2*).

Claim 12 contains subject matter similar to Claim 7, and thus, is rejected for the same reasons.

Claim 14 contains subject matter similar to Claim 10, and thus, is rejected for the same reasons.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- Klovstad et al (*U.S. Patent: 4,713,777*)- teaches a method of speaker-dependent speech recognition that utilizes word beginning and ending times.

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- Has et al (*U.S. Patent: 6,230,137*)- teaches a speech control system utilizing directional microphones to determine a user location.
- Okitsu (*U.S. Patent: 6,421,644*)- discloses a speech recognizer capable of determining a sound source location.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James S. Wozniak whose telephone number is (703) 305-8669 and email is James.Wozniak@uspto.gov. The examiner can normally be reached on Mondays-Fridays, 8:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doris To can be reached at (703) 305-4827. The fax/phone number for the Technology Center 2600 where this application is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the technology center receptionist whose telephone number is (703) 306-0377.

James S. Wozniak
9/8/2004


SUSAN MCFADDEN
PRIMARY EXAMINER